the polarizations of the signal being transmitted. The structure comprises parallel conductive strips on a substrate of dielectric material. It also includes conductive vias through the sheet to a conductive layer on the substrate's surface opposite the strips. At resonant frequency, this structure presents as a series of high impedance resonant L-C circuits.

Replace the paragraph on page 5, line 28 to page 6, line 3, with the following:

In another embodiment, the phase shifting waveguide again has an impedance structure on two or all four of its walls, with the impedance structure being voltage controlled to resonate at different frequencies. The range of resonant frequencies is below the signal frequency being passed by the waveguide, and changes in the structure's resonant frequency result in different shifts in the phase of the signal being passed. The preferred impedance structure has parallel conductive strips. To change the resonant frequency, the impedance structures include varactor diodes along the gaps between the structure's conductive strips. A change in the voltage applied to the varactor diodes changes both the capacitance across the gap and the resonant frequency of the structure.

Replace the paragraph on page 9, lines 3-12, with the following:

With the impedance structures 12 on its sidewalls, the waveguide 10 is particularly applicable to passing vertically polarized Ev signals that have an E field transverse to the strips 18. As shown in FIG. 2, at a particular resonant frequency the vias 22 present an inductive reactance (L) 26 to the transverse E field, and

the gaps between the strips 18 present an approximately equal capacitive reactance (C) 28. The surface presents parallel resonant L-C circuits 29 to the signal's transverse E field component; i.e. a high impedance.

Replace the paragraph on page 10, lines 15-22, with the following:

Numerous materials can be used to construct the impedance structure 12. The dielectric substrate 20 can be made of many dielectric materials including, but not limited to, plastics, poly-vinyl carbonate (PVC), ceramics, or high resistance semiconductor material such as Gallium Arsenide (GaAs), all of which are commercially available. Highly conductive material should be used for the conductive strips 18, conductive layer 24 and vias 22.

Replace the paragraph on page 12, lines 7-30, with the following:

FIG. 5 is a detailed sectional view of one of the impedance structures 42. It has alternating conductive strips 48 similar to those described above. They have uniform width and are formed on a dielectric (e.g. high resistivity GaAs) substrate 52, that can be made of the same dielectric materials as the dielectric 20 in FIG. 1. Conductive vias 54 extend from the strips, through the substrate 52 to a conductive layer 56 on the substrate's outer surface. Control strips 48a are provided between the conductive strips 48 and have a voltage (+V) applied to them that controls the capacitance across the gaps between strips 48 and 48a. Each control strip 48a has vias 55 extending through the dielectric substrate 52 to the conductive layer 56. Each strip comprises a conductive via cap 65 on top of its vias 55, an insulator strip 66 on top

of the via cap 65, and a wider conducting voltage strip 67 on the insulating strip 65. Each gap between strips 48 and 48a have a pair of varactor (i.e. variable capacitance) diodes 58 to vary the capacitance across the gaps. Varactor diodes are junction diodes that are utilized for their voltage dependent capacitance. A conductive N+ layer 60 connects each pair of varactor diodes 58 across each gap. Along the edge of each insulating strip 66, between the voltage strip 67 and the varactor diode below, is a conductive coupling strip 68 that provides a conductive path between the voltage strip 67 and the varactor diode 58.

Replace the paragraph on page 13, lines 13-23, with the following:

In fabricating the diodes 58, N+ layers 60 of a semiconductor material such as GaAs, are etched into mesas before the strips 48 are formed. The layer 60 runs along the gaps between the strips and will be partially below the strips 48 and 48a on each side of the gaps. The diodes 58 are then formed on the N+ layer 60, with both the N+ layer 60 and the diodes terminating short of the vias 54 and 55 and separated therefrom by intervening portions of the dielectric material. When the strips 48, insulating layer 66, coupling strip 68 and voltage strip 67 are formed, they extend over a diode 58 on each lateral side.

Replace the paragraph on page 16, line 25 to page 17, line 5, with the following:

Matching grid polarizers 110 and 112 are mounted on each side of and parallel to the array amplifier chip 108. The polarizers appear transparent to one signal polarization, while reflecting a signal with an orthogonal